

To:

WORK DESCRIPTION: Faringdon South East stage 1= 18 Lots**Cable work in compliance with Orion NZ Network Design & Construction Standards.**

Street Lights in compliance with manufacturers & Council requirements (Windsor Spec).


- 1) Supply & Install LV & HV reticulation in subdivision to supply new lots & lights.
- 2) Complete 2x kiosk installations (full type & 1/4 kiosk).
- 3) Underground 33KV & 11KV lines Selwyn Rd & Springston Rolleston Rd.
- 4) Install street lights, delivered to site by developer, to Windsor specifications (also replace two fittings).
- 5) Allow for dig/backfill for 3xHV & 1x33KV 300Al 3x1c xlp thru joint (also for LV locations, refer page 4).


Cable Trenching/ducting by developer. Surveyor Davie Lovell Smith Ltd to peg 2 x kiosk title sites= one full type & one 1/4kiosk.



PREPARED BY:	D.A.Wear	CIRCULATION:
DATE:	17-Dec-20	Contractor:
RELATED ORDERS:	ES 433061	Surveyor: Davie Lovell Smith
WD-1986 Issue A shts 1-7		R D Hughes: Kelvin Back
Lights to Windsor dwg: A3-200428 P1-P18		Orion: Craig Marshall
Lay Start Date:	Feb/Mar 2021	Telecom Provider: Enable
	Lay schedule to be discussed	Trenching: BG Contracting

SIZE	FUSE/ LINK	REF	CABLE SIZE	Tender Length	HV System Work
	2k2T	Cct.	HV Cables	(mtr)	Selwyn Rd No278 Lot 224, L3/589 (install full kiosk with 2k2T & 200kVA)
Links	Closed	51	185mm ² 3c Al XLP	140	Connect & lay west to thru joint ex HV185Al Cd12392 from kiosk "Selwyn Rd Lot 508".
Links	Closed	52	185mm ² 3c Al XLP	640	Connect & lay east to new 1/4 kiosk "Selwyn Rd crn Springston Rolleston Rd". Allow for one thru jt due to qty.
Fuses	Closed	53	95mm ² 3c Al XLP	50	Connect & lay to term pole Arrestors L3/592 (2 wire Flounder line to 15kVA L3/488). Enliven with 10FDLNU fuses.
Fuses	Closed	54	25mm ² AL 3x1c XLP	Leads	Install leads to 200kVA transformer (supply & enliven with 16FDLNU fuses).
	2kb2k				Selwyn Rd crn Springston Rolleston Rd, L3/590 (install 1/4 kiosk with 2kb2k & accessories Heater & thermo)
Links	Closed	51	185mm ² 3c Al XLP	----	Connect cable from new kiosk "Selwyn Rd No278 Lot 224".
	Open	52	185mm ² 3c Al XLP	286	Connect & lay Nth in Springston Roll Rd to thru jt Cd12561 ex. cable from kiosk "off Lady Isaac Dr Lot 77"
Links	Closed	53	185mm ² 3c Al XLP	28	Connect & lay to new term pole Selwyn Rd, line Arrestors L3/591. Line heads east in Selwyn Rd & Sth to ABI L3/343.
	Open	54	185mm ² 3c Al XLP	Fut.	Future
					For new kiosks use latest Earthing standard for electrodes & leads.
					Install concrete foundation for the full type kiosk & 1/4 kiosk.
					Lines work
					Selwyn Rd, L3/591 (Install HV cable term pole & arrestors with new site Earthing) replaces pole CZ142.
---	Arrestors	---	185mm ² Al 3c xlp	---	New PP to OC12.4= 12m 20U HW 2.3m depth. HV DOG lines(shackle HV lines) install grd sty. No LV arm required.
					Raise & connect HV cable. New cable from kiosk "Selwyn Rd crn Springston Rolleston Rd" Outlet 53.
					33KV DOG lines above on top arm to OB2.1.
					Selwyn Rd, L3/592 (Install HV cable term pole & arrestors with new site Earthing) replaces pole EJ355.
---	Arrestors	---	95mm ² Al 3c xlp	---	New PP to OC12.4= 11m 20U HW 2.5m depth. Flounder 2wire lines(shackle HV lines) & grd blocks. No LV arm required.
					Raise & connect HV cable. New cable from kiosk "Selwyn Rd No728 Lot 224" Fused Outlet 53.
					Fit Insulated End over Y phase cable End. R & B phases supply the Lines heading way.
Cable quantities for tender use, with 5mtrs allowed for cable tails at kiosks.					Sheet No.
Developer to complete trenching and install 100mm ducts.					1 of 8
					Refer schematics for further details
					Date: 17/12/2020
					Issue: A
					Design-Net Ref: DN-1986

SIZE	FUSE/ LINK	REF	CABLE SIZE	Tender Length	Lines work continued
		Cct.		(mtr)	33KV Termination pole (Qty 1)
					Work on the 33KV lines: Springston (3562)-Rolleston(3206)-Highfield(4216)
---	Arrestors	---	33KV Cable supplied by developer 300mm ² Al 3x1c xlp	820	Selwyn Rd, L33/41 (Install 33kV cable term pole & arrestors with site Earthing) 20m west of pole CZ142 New PP to OB8.2= 12m 20U HW 2.3m depth. 33kV DOG lines(shackle lines) install grd sty. No HV arm required. Raise & connect 33kV cable. Lay cable west to thru joint ex cable Cd12436 (after lowering from arrestors L33/37). <u>Refer cable plans for anchor block details & new pole postion.</u>
			DOG 33KV	810	Line & Pole removal summary (poles/lines disposed of by electrical contractor) Remove 33kV DOG lines & poles, Selwyn Rd from L33/37 to new term pole/arrestors L33/41 Sewyn Rd.
			DOG 11KV Flounder 11KV	775 22	Also remove 11KV DOG lines: Same route as 33KV removal in Selwyn Rd but to new 11KV term pole L3/591. Remove 2wire RC span Selwyn Rd from EJ354 to EJ355.
			DOG 11KV	240	Also remove 11KV DOG lines: Springston Rolleston Rd to arrestor pole L3/547. Include removal of 11KV LCB L3/65 (Line Circuit Breaker, return to store).
			LV conductors	qty	Selwyn Rd, several LV spans to remove. Pole Transformers to be removed & returned to store Selwyn Rd 2x30kVA: L3/93 & L3/158, 1x 50KVA L3/107.
			120mm ² Al 3c+ 1c NS	90	Further LV cable to abandon. Lower & abandon LV cable from pole sub L3/158 to BB 708 Selwyn Rd (House Mains have already been demoed).
Cable quantities for tender use, with 3mtrs allowed for each LV tails at DBS. Developer to complete trenching and install 100mm ducts.				Sheet No. 2 of 8	<div> <div>Accepted Orion  Craig Marshall Jan 18 2021</div> <div> Date: 17/12/2020 Issue: A Design-Net Ref: DN-1986 </div> </div>


SIZE	FUSE/ LINK	REF	CABLE SIZE	Tender Length	LV System Work LV from 1 new kiosk. Accessories include 500/5 CTs MDIs & Local service panel. SL relay required.
		Cct.	LV Cables	(mtr)	
Size 3	Links	PS	185mm ² Cu 4x1c	Leads	Selwyn Rd No 728 Lot 224 (new kiosk, 3xLV Ccts required, 800amp panel with Gen. Terms) Install leads from central incomer to 200kVA Transformer.
Size 3	355amp	2	185mm ² Al 3c+ 1c NS	127	Connect & lay west to 3x Boxes then Ins End, plus 32m LV120Al3cNS across to DBS 737 Selwyn Rd. Connect & lay east to DBS Lot 273/274, then change cable size to LV185Al3cNS, Continue 4x Boxes to DBT 701/685 Selwyn Rd. Also 53m LV120Al3cNS to DBS 711 Selwyn Rd.
Size 3	355amp	3	300mm ² Al 3c+ 1c NS	114	
			185mm ² Al 3c+ 1c NS	391	
			16mm ² Cu 1c NS	206	At DBT 701/685 connect & lay LV16Cu1cNS heater cct to new 1/4 kiosk "Selwyn Rd crn Springston Rolleston Rd".
Size 3	355amp	4	185mm ² Al 3c+ 1c NS	90	Connect & lay east to 2x DBS then Ins End (new road formation, end of stage 1).
Selwyn Rd Lot 508 (previous stage kiosk)					LV from previous stage Selwyn Rd; DBS Lot 498/ new Lot 1.
Size 3	355amp	3	185mm ² Al 3c+ 1c NS	38	Connect at DBS Selwyn Rd No754/lot 1 & lay into Ins. End Faringdon Bvd (end of stage 1).
Cable quantities for tender use, with 3mtrs allowed for each LV tails at DBS. Developer to complete trenching and install 100mm ducts.					<div> <div>Accepted Orion  Craig Marshall Jan 18 2021</div> </div>
Sheet No.					Date: 17/12/2020
3 of 8					Issue: A
					Design-Net Ref: DN-1986

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Faringdon South East stage 1 (SLs, mains work & major materials).

SIZE	FUSE/LINK	REF Cct.	CABLE SIZE	Tender Qty (mtr)				
			LV 16mm ² 1c Cu NS	982	Streetlight Cabling (Lights marked by surveyor to Windsor dwg prior to cabling) Install S/L cables as indicated on working dwg (connecting as shown on SL schematic). Install new SL relay in new kiosk: Selwyn Rd No 278 Lot 224. Install Lights (qty=18) ground mount, to manufacturers requirements. For new Lights allow for assembly, wiring, fuse panel & pole hole digging. Windsor Plan A3-200428. CoC required for each light. Lights delivered to site ready for assembly & wiring with fuse panel. Also two light fittings replace with 98Watt (Type L3A Windsor dwg) crn Springston Rolleston Rd. LV Mains cable work(install with hazard tape at 1/2 depth, CoC required). To Lot 271 existing dwelling 710 Selwyn Rd. New Mains abandon ex from pole sub L3/158. Mains transfers. Selwyn Rd Lower 3ph Mains from pole fuse & transfer to new boxes Nos: 737, 711, 701 & 685. Abandon Mains to: No728 No708 & No700 No708 ex dwelling will be re-supplied in stage 2. Extra Digging/backfill required: At 3x HV thru joints & 1x 33KV thru joint. LV Ins. ends at side roads off Selwyn Rd (5 locations). Dig for lowering ex mains transfer to new boxes (3 locations Selwyn Rd) Dig for new HV95Al riser near term pole 725 Selwyn Rd. Dig for new HV & 33KV risers near term poles on Selwyn Rd. Dig for LV cable connection at ex SL Springston Roll Rd. Lines Materials for new 33kV cable term pole as per standard dwgs 12m 20U HW: 1 x Line shackle to OB8.2 & grd stays. Earthing for arrestors at new site. 33KV cable end term=300Al3x1c xlpe at site. Lines Materials for new HV cable term poles (line shackles) 1x12m 20U HW pole to OC12.4, arrestors, no LV arms. Ground stay required for new pole.33KV above to OB2.1 Earthing for arrestors at new site. 11kV cable end term=185Al3c xlpe at site. DOG shackle. 1x11m 20U HW poles to OC12.4, arrestors, no LV arms. Breast & heal block. Earthing for arrestors at site. 11kV cable end term=95Al3c xlpe at site with Y Phase Ins end at cable riser. Flounder 2ph. All LV terms by shear bolt lugs.			
			25mm ² Cu 3c NS	Est. 50				
33kV cable pick up from Connetics cable store(customer purchase aranged).								
Material Summary		Qty.	Further Materials					
HV cable		mtrs	1x Full Kiosk with accessories for					
185mm ² Al 3c xlp		1,094	200kVA Transformer & MSU 2k2T					
95mm ² Al 3c xlp		50	800amp DIN Panel with Incomer					
LV cable			500/5 CTs & MDIs					
300mm ² Al 3c+ 1c Cu NS		114	DIN Ccts equipped as spec. In Page 3					
185mm ² Al 3c+ 1c Cu NS		646	3 ccts to be equipped at kiosk					
120mm ² Al 3c+ 1c Cu NS		85	1x SL relay					
16mm ² 1c Cu NS S/L+Heater		1,188	MSU HV fuses 1 set 16FDLNJ					
Mains Cables			MSU HV fuses 1 set 10FDLNJ					
25mm ² 3c Cu NS		50						
to existing dwelling			Kiosk Earthing for the new sites.					
Internal Kiosk Leads		qty	Kiosk foundations (full & 1/4).					
LV 185mm ² 4x1cCuXLP		1 set						
HV 25mm ² Al 3x1cXLP		1 set	1x 1/4 Kiosk with accessories for					
HV Thru joints			MSU 2kb2k Inlc Heater & Thermostat					
185mm ² Al 3c xlp to same		3						
HV MSU Terminations			LV Ins Ends					
95mm ² Al 3c xlp MSU		1	3x 185mm ² Al 3c+ 1c Cu NS					
185mm ² Al 3c xlp MSU		5	3x 16mm ² 1c Cu NS (future SLs)					
95mm ² Al 3c xlp to OH		1	LV Boxes					
185mm ² Al 3c xlp to OH		1	8 x new DBS with fuses/lots					
HV Leads at MSU			4 x new DBT with fuses/lots					
HV 25mm ² Al 3x1cXLP ends		1 set						
Notes: All cable quantities are for tender purposes, with 3m allowed for each cable tail at DBS & SL, 5m at kiosk. 33KV cable supplied by developer (ex Connetics store).					Sheet No.			Date: 17/12/2020
					4 of 8			Issue: A
							Refer schematics	Design-Net Ref: DN-1986

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Orion Supplied equipment
1x200kVA transformer
MSU 2k2T
MSU 2Kb2K

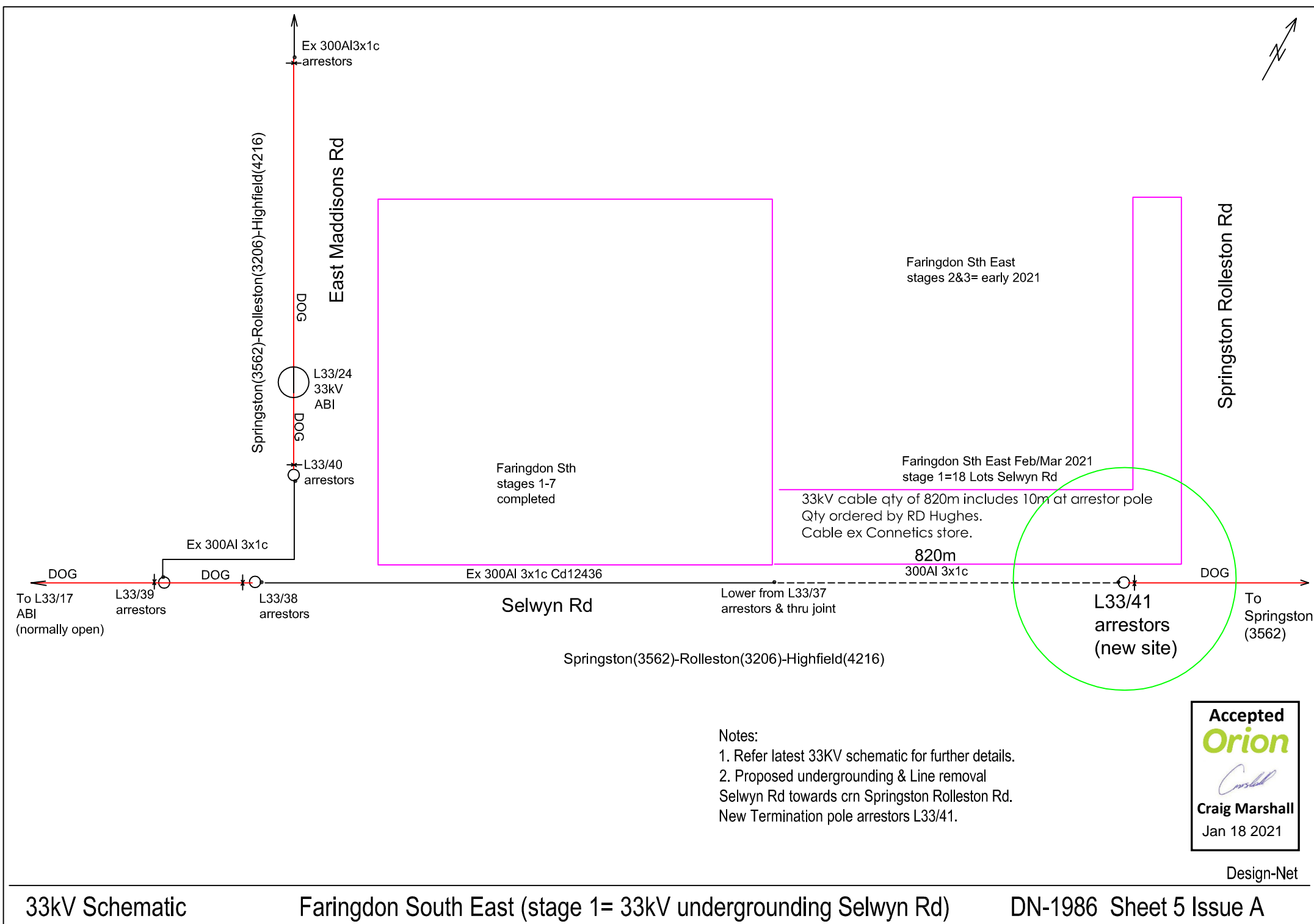
Return to store
2x30KVA 1x 50KVA
L3/65 Line Circuit Breaker

**Orion Supplied equipment**

1x200kVA transformer
 MSU 2k2T
 MSU 2Kb2K

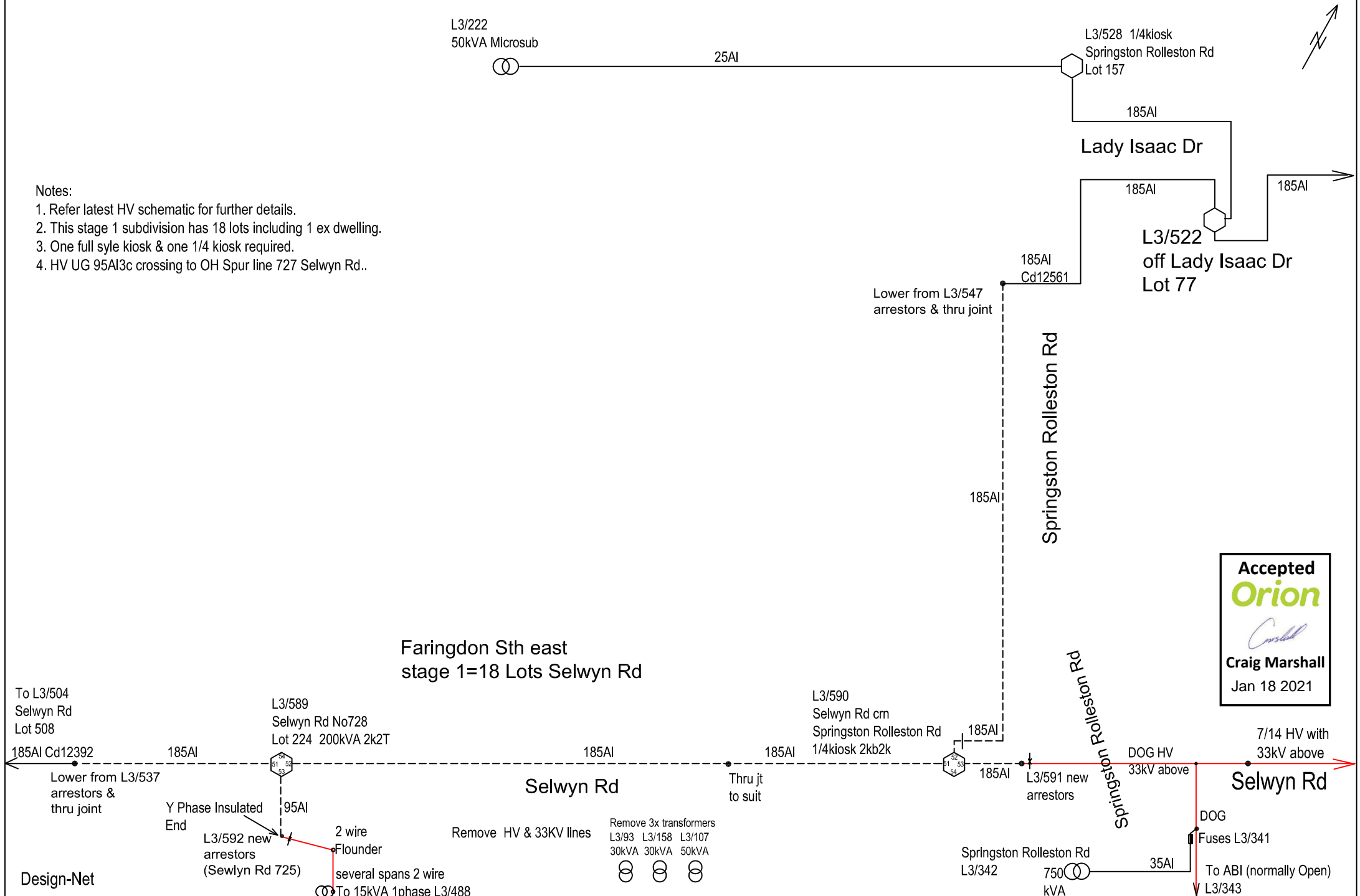
Return to store

2x30KVA 1x 50KVA
 L3/65 Line Circuit Breaker



Notes:

1. Refer latest HV schematic for further details.
2. This stage 1 subdivision has 18 lots including 1 ex dwelling.
3. One full syle kiosk & one 1/4 kiosk required.
4. HV UG 95Al3c crossing to OH Spur line 727 Selwyn Rd..

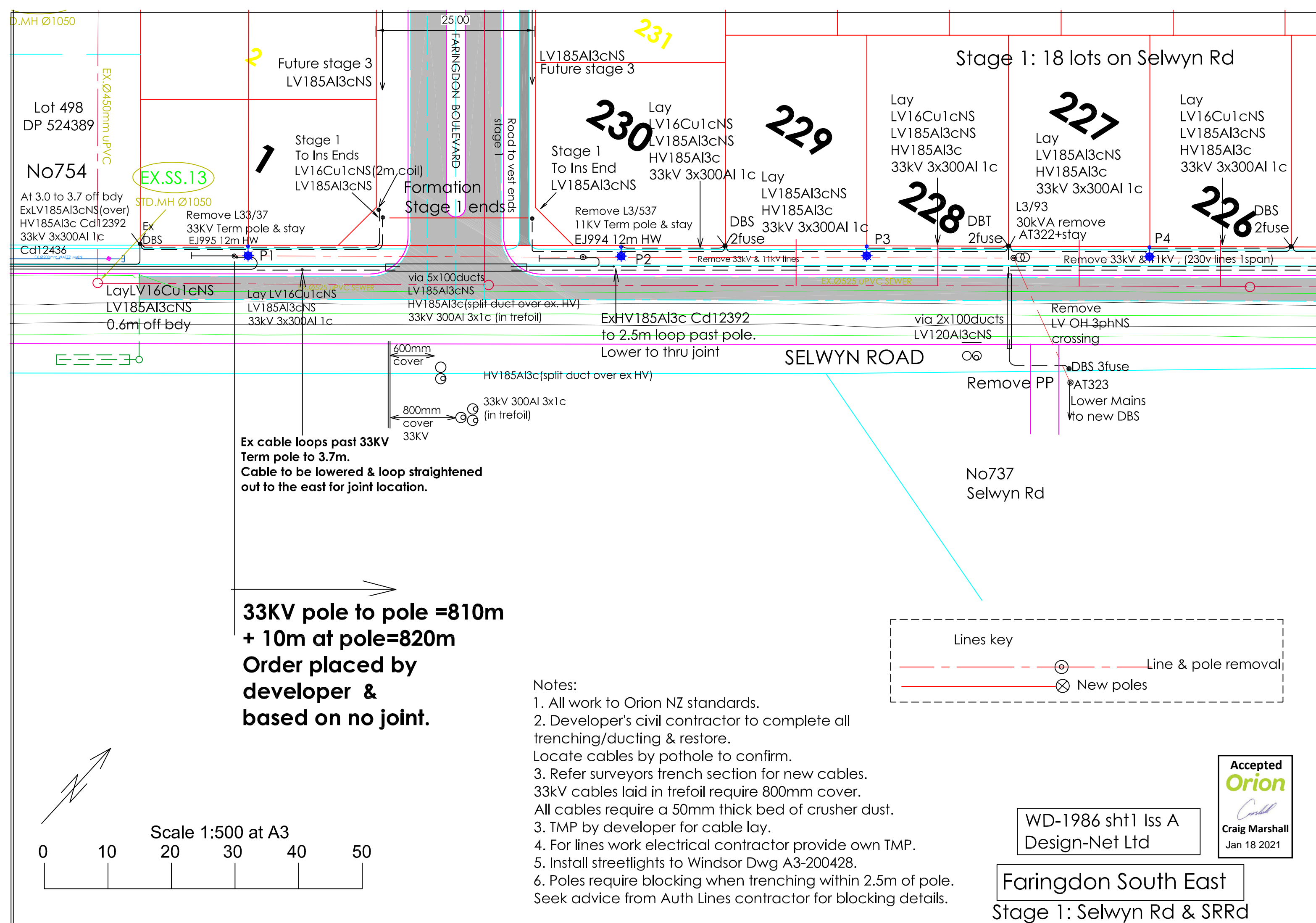


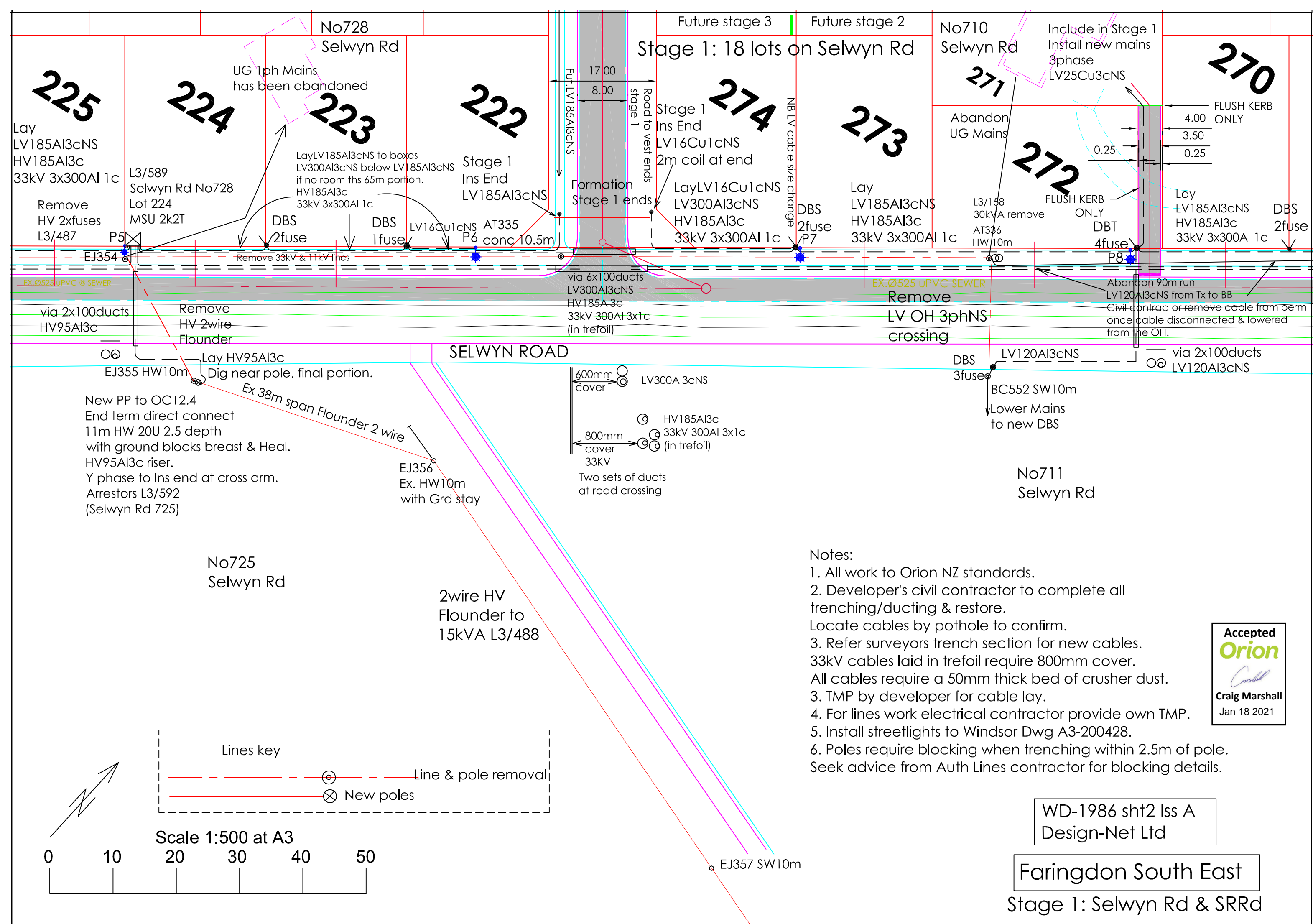
1. Refer latest LV schematic for further details.
2. This stage 1 subdivision has 18 lots including 1 existing dwelling (3phase mains) at 710 Selwyn Rd.
3. All new lots single phase 63amp apart from ex dwelling.
4. Existing dwellings have 3phase supplies.



1. Refer latest SL schematic for further details.
2. New LV Tails to SLs LV16Cu1cNS.
3. Install (18) new lights to Windsor Dwg A3- 200428.
4. Replace two fittings at ex lights Springston Rolleston Rd/crn Selwyn Rd.

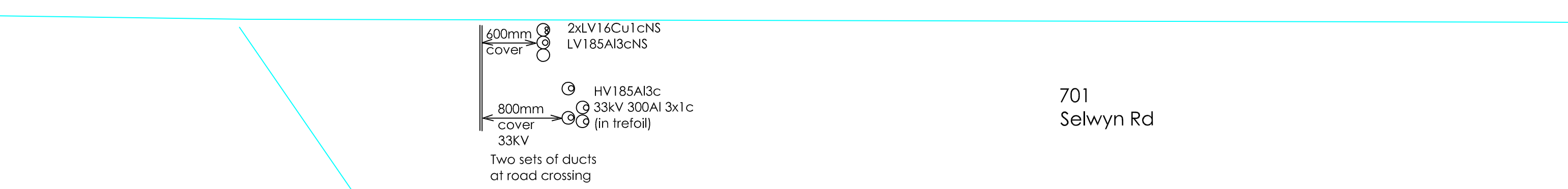
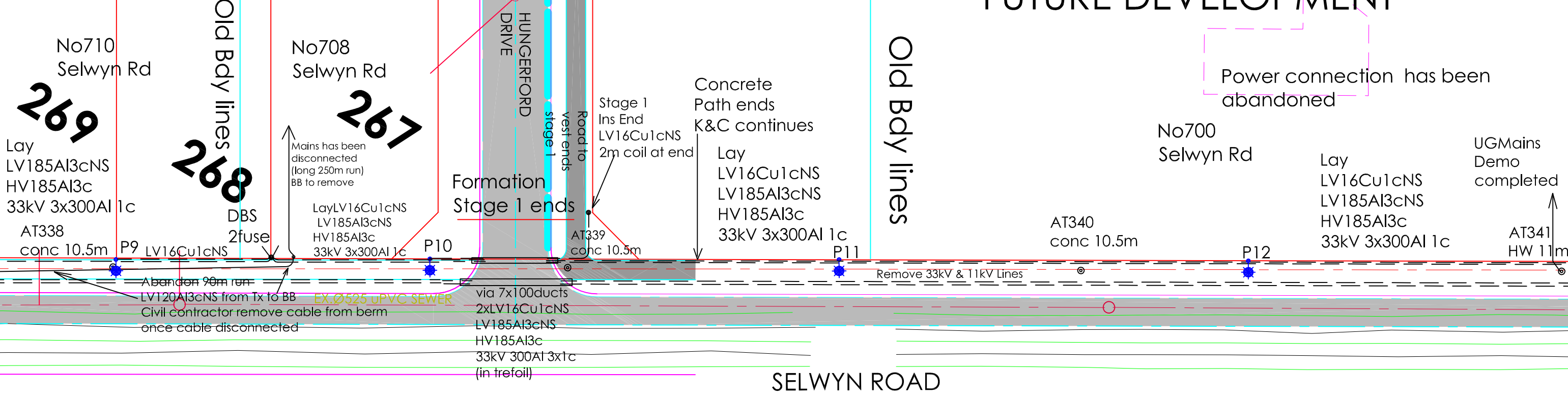






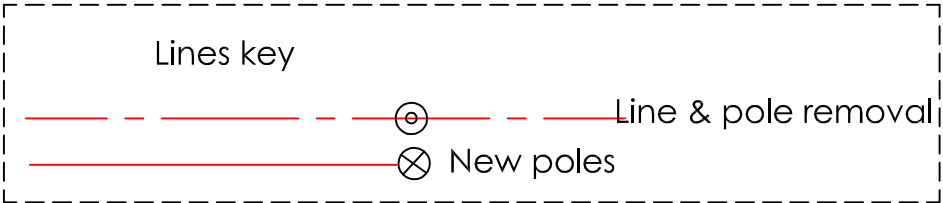
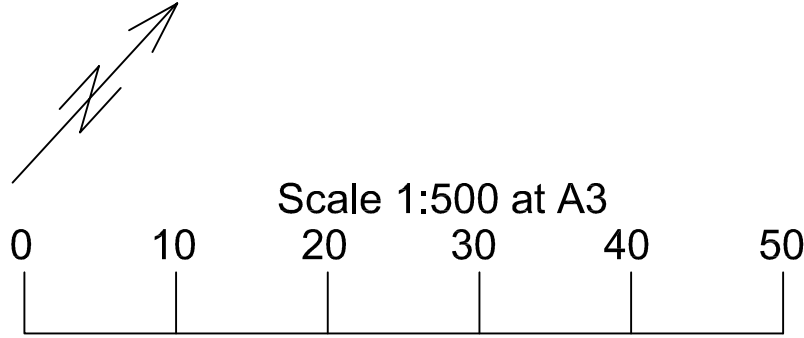
Stage 1: 18 lots on Selwyn Rd

FUTURE DEVELOPMENT



- Notes:
- 1. All work to Orion NZ standards.
 - 2. Developer's civil contractor to complete all trenching/ducting & restore. Locate cables by pothole to confirm.
 - 3. Refer surveyors trench section for new cables. 33kV cables laid in trefoil require 800mm cover. All cables require a 50mm thick bed of crusher dust.
 - 3. TMP by developer for cable lay.
 - 4. For lines work electrical contractor provide own TMP.
 - 5. Install streetlights to Windsor Dwg A3-200428.
 - 6. Poles require blocking when trenching within 2.5m of pole. Seek advice from Auth Lines contractor for blocking details.

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Faringdon South East
Stage 1: Selwyn Rd & SRRd

FUTURE DEVELOPMENT

Old Bdy lines

Old Bdy lines

No694 Selwyn Rd
(OH Mains demo completed)

Lay
LV16Cu1cNS
LV185AI3cNS
HV185AI3c
33kV 3x300AI 1c

L3/107
50kVA
remove
AT342
HW 12m

Lay LV16Cu1cNS SLs
& LV16Cu1cNS
Heater circuit
HV185AI3c
33kV 3x300AI 1c

L3/265
ABI (Norm. closed)
remove
AN672
HW 11m

Remove 33kV & 11kV Lines

Lay LV16Cu1cNS SLs
& LV16Cu1cNS
Heater circuit
HV185AI3c
33kV 3x300AI 1c
AT345
Conc 10.5m

P13

P14

P15

P16

Remove 33kV & 11kV, (400v lines 1span)

EX.Ø525 uPVC SEWER

EX.Ø525 uPVC SEWER

via 3x100ducts
LV185AI3cNS
LV16Cu1cNS

Remove
LV OH
crossing

DBT 7fuse
AT343 SW8.5m
Lower 2xMains
3phase cables
to new DBT(6fuse)
The 7th fuse is for the 1/4kiosk Heater cct

SELWYN ROAD

2x Ex dwellings
701 & 685
Selwyn Rd

701
Selwyn Rd

685
Selwyn Rd

Notes:

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Locate cables by pothole to confirm.
3. Refer surveyors trench section for new cables.
33kV cables laid in trefoil require 800mm cover.
All cables require a 50mm thick bed of crusher dust.
3. TMP by developer for cable lay.
4. For lines work electrical contractor provide own TMP.
5. Install streetlights to Windsor Dwg A3-200428.
6. Poles require blocking when trenching within 2.5m of pole.
Seek advice from Auth Lines contractor for blocking details.

Lines key

- Line & pole removal
- New poles

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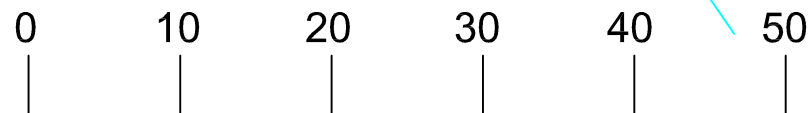
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Faringdon South East

Stage 1: Selwyn Rd & SRRd

Scale 1:500 at A3



L3/590
Selwyn Rd crn with
Springston Rolleston Rd
1/4 kiosk MSU 2kb2K
for HV switching only
1.5m x1.5m

Acland Park 10 lots
deferred until
33kV lines removed

Lay LV16Cu1cNS SLs
& LV16Cu1cNS
Heater circuit
HV185Al3c
33kV 3x300Al 1c

Lay
HV185Al3c
Landscaping
small trees

Ex to 2x SLs
LV16Cu1cNS
Elec location required.
SL cable may need to be replaced (by Var)

Ex HV line change
AT369
Conc 10.5m
+stays

Ex hedge

33kV &
11kV Lines 7/14

SELWYN ROAD

Remove 33kV
& DOG HV
33kV
Lines
shackle
20m
Dig near
term pole
Replace
CZ142
HW12m
2xHV185Al3c
Dig near
term pole
11kV DOG
Lines
shackle

33kV &
11kV DOG Lines
ex 57m span
Ex 1x100duct
LV16Cu1cNS
elec location
required

33kV &
11kV DOG Lines

SELWYN ROAD

New 33KV Term pole
& ground stay to
OB8.2
12m HW 20U
2.3m depth
No 11KV arms
Arrestor site L33/41

Stay wire 9.45mm dia
Anchor block 2m x 300mm
dia to OG5.1 Item 3

Replace pole with
new 11KV Term pole
& ground stay
OC12.4 12mHW 20U
2.3m depth
33KV inline
above to OB2.1.
Arrestor site L3/591

Stay wire 9.45mm dia
Anchor block 2m x 300mm
dia to OG5.1 Item 3

P18

Lay
LV16Cu1cNS
elec location
required

Replace fitting
Type L3A

Connect
at Ex SL
Dig/backfill

SDC
Pumping
station

ROLLESTON ROAD

CZ150
HW12m
L3/341 HV fuses
HV35Al3c cable

Notes:

1. All work to Orion NZ standards.
2. Developer's civil contractor to complete all trenching/ducting & restore. Locate cables by pothole to confirm.
3. Refer surveyors trench section for new cables. 33kV cables laid in trefoil require 800mm cover. All cables require a 50mm thick bed of crusher dust.
3. TMP by developer for cable lay.
4. For lines work electrical contractor provide own TMP.
5. Install streetlights to Windsor Dwg A3-200428.
6. Poles require blocking when trenching within 2.5m of pole. Seek advice from Auth Lines contractor for blocking details.

Lines key

Line & pole removal
New poles

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Scale 1:500 at A3

0 10 20 30 40 50

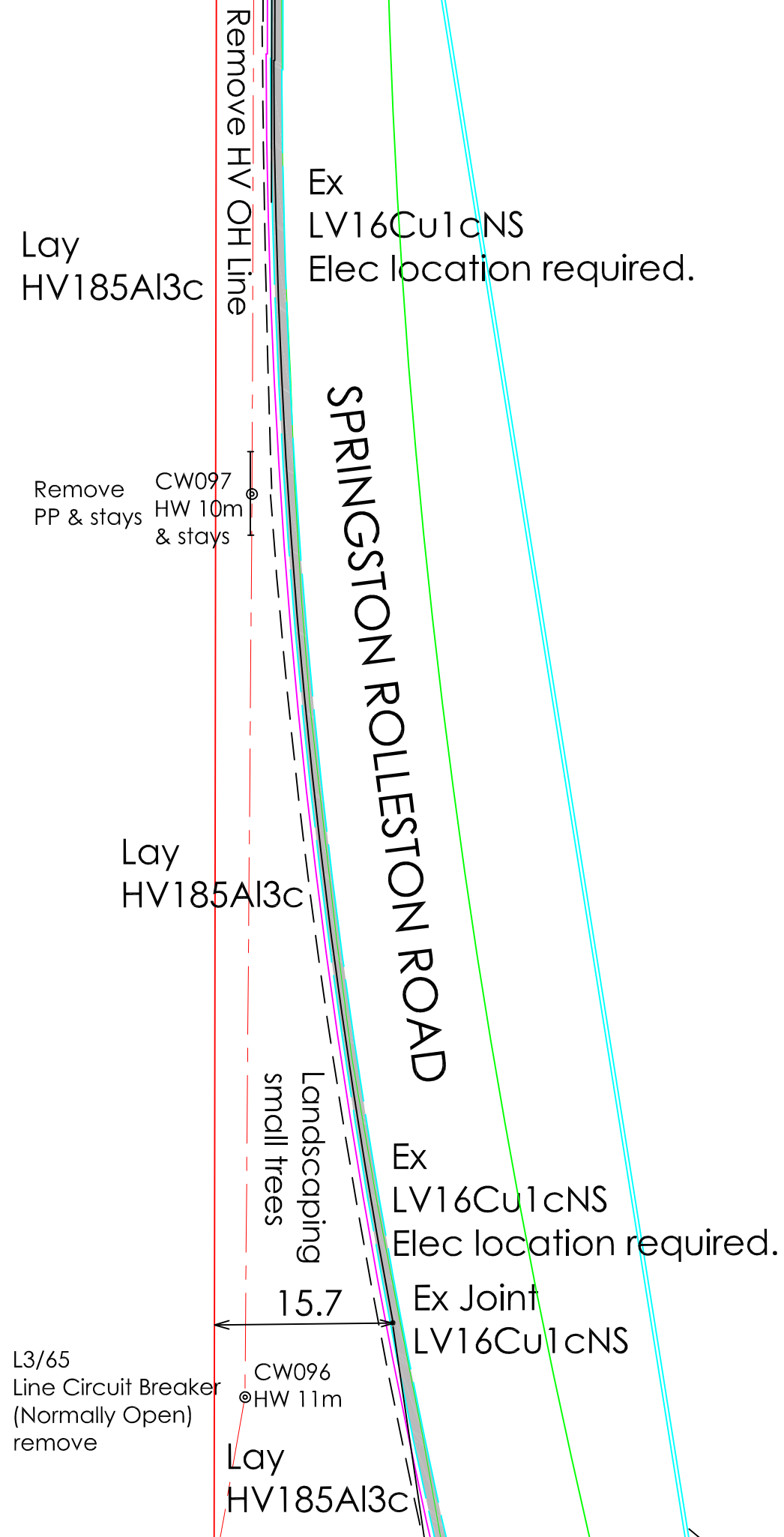
33KV pole to pole =810m
+ 10m at pole=820m
Order placed by
developer &
based on no joint.

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Faringdon South East

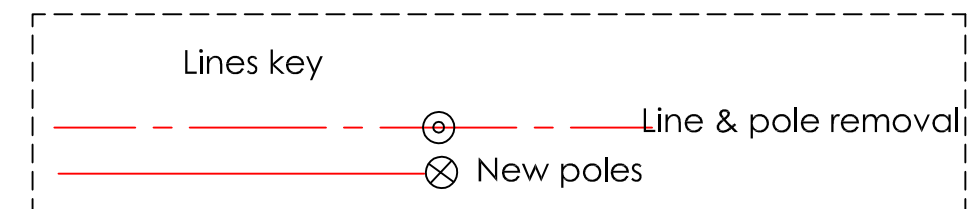
Stage 1: Selwyn Rd & SRRd

FUTURE DEVELOPMENT



Notes:

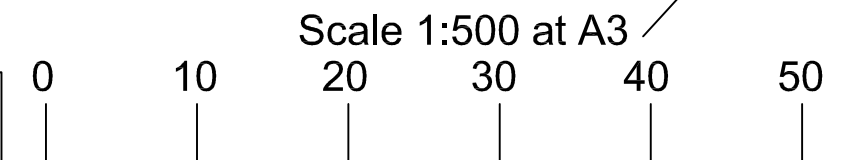
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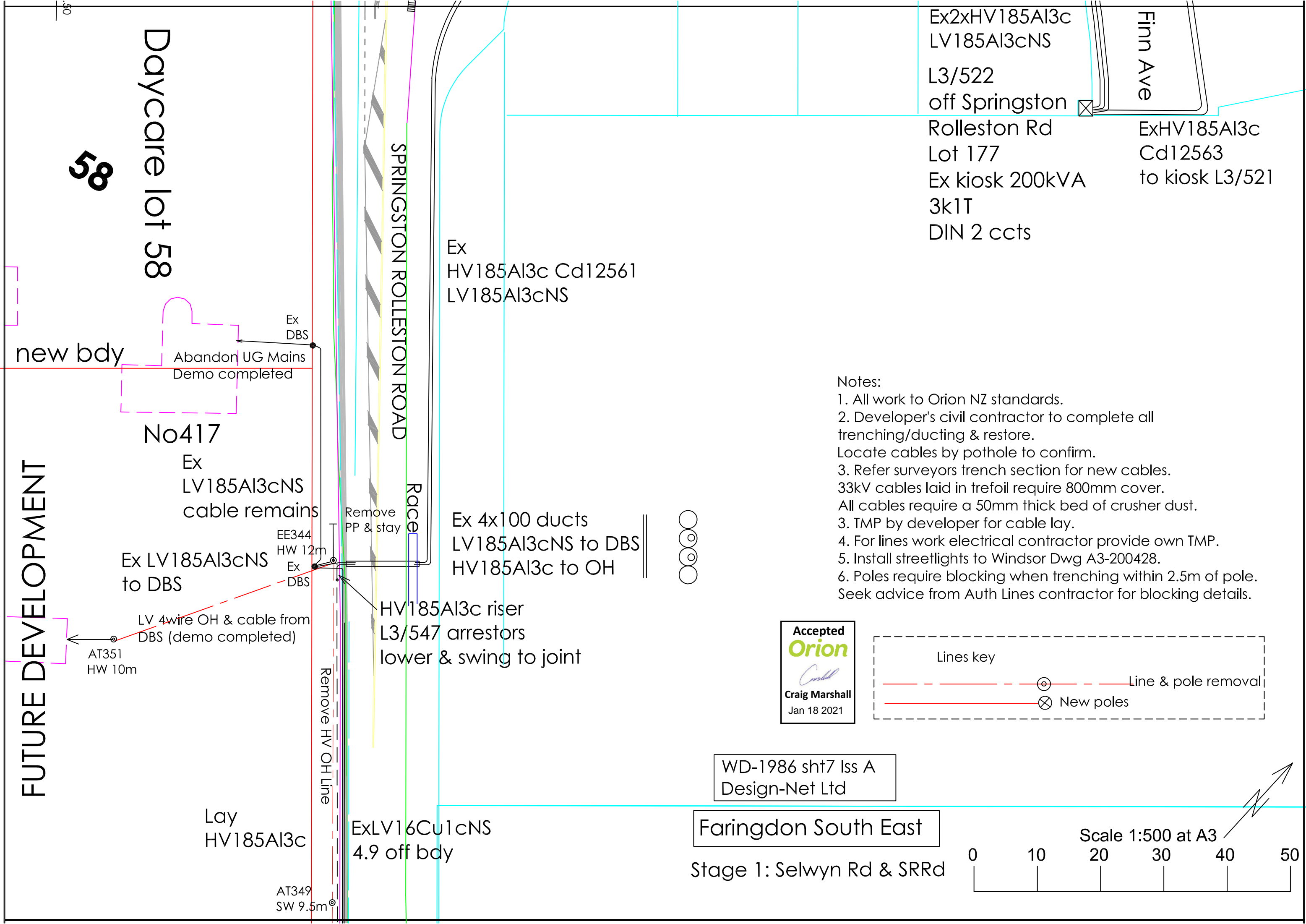


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Faringdon South East

Stage 1: Selwyn Rd & SRRd





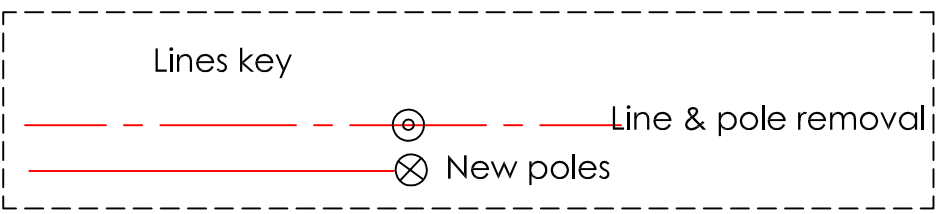
Ex2xHV185Al3c
LV185Al3cNS
L3/522
off Springston
Rolleston Rd
Lot 177
Ex kiosk 200kVA
3k1T
DIN 2 ccts

Finn Ave
ExHV185Al3c
Cd12563
to kiosk L3/521

Ex
HV185Al3c Cd12561
LV185Al3cNS

- Notes:
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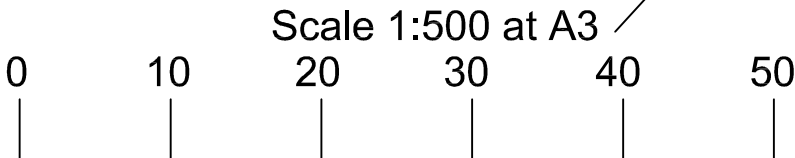
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Faringdon South East

Stage 1: Selwyn Rd & SRRd



FUTURE DEVELOPMENT

Daycare lot 58

No417

Ex
LV185Al3cNS
cable remains

Ex LV185Al3cNS
to DBS

LV 4wire OH & cable from
DBS (demo completed)

AT351
HW 10m

Lay
HV185Al3c

ExLV16Cu1cNS
4.9 off bdy

AT349
SW 9.5m

Remove HV OH Line

Remove
PP & stay

Race

Ex 4x100 ducts
LV185Al3cNS to DBS
HV185Al3c to OH

HV185Al3c riser
L3/547 arrestors
lower & swing to joint

Abandon UG Mains
Demo completed

Ex
DBS

new bdy